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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,731	11/20/2003	Shih-Fang Chuang	TI-36243 (1962-07600)	8713
23494	7590	05/16/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			PHAM, HOAI V	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/717,731	Applicant(s) CHUANG, SHIH-FANG	
	Examiner Hoai V. Pham	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-25 is/are pending in the application.
- 4a) Of the above claim(s) 22-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-21 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/20/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Fig. 3, claims 16-21 in the reply filed on March 03, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 16-17, 19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Akram et al. [U.S. Pat. 5,866,953].

With respect to claim 16, Akram et al. (fig. 4, cols. 4-6) discloses a semiconductor device comprising:

a semiconductor die (402);

a chip carrier (416);

a die attach material (422) including a component of which the CTE is negative;

and

the semiconductor die (402) attached to the chip carrier (416) with the die attach material (422).

With respect to claim 17, Akram et al. (fig. 4 and col. 5, lines 20-25) discloses that the chip carrier is selected from a group consisting of a substrate and a leadframe.

With respect to claim 19, Akram et al. (fig. 4 and col. 4, lines 1-6) discloses that an encapsulant (424, 428) encapsulates the semiconductor die, the encapsulant (424, 428) including a component of negative CTE.

With respect to claim 21, Akram et al. (fig. 4 and col. 4, lines 1-6) discloses that the encapsulant (424) is selected from a group consisting of a mold compound and a glob-top material.

4. Claims 16-17, 19, 21 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Papathomas [U.S. 2002/0105093].

With respect to claim 16, Papathomas (fig. 1, cols. 6-7) discloses a semiconductor device comprising:

a semiconductor die (6);

a chip carrier (2);

a die attach material (14) including a component of which the CTE is negative;

and

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the semiconductor die (6) attached to the chip carrier (2) with the die attach material (14).

With respect to claim 17, Akram et al. (fig. 1 and col. 7, pp [0050]) discloses that the chip carrier (2) is selected from a group consisting of a substrate and a leadframe.

With respect to claim 18, Akram et al. (fig. 1 and col. 7, pp [0043]) discloses that the component with negative CTE is a tungstate material.

With respect to claim 19, Akram et al. (fig. 1) discloses that an encapsulant (a portion of the die attach material 14 that covers the sides of the semiconductor die (6)) encapsulates the semiconductor die, the encapsulant (14) including a component of negative CTE.

With respect to claim 20, Akram et al. (fig. 1 and col. 7, pp [0043]) discloses that the encapsulant (14) includes a tungstate material.

With respect to claim 25, Akram et al. (fig. 1 and col. 7, pp [0043]) discloses that the die attach material (14) and the encapsulant (14) include zirconium tungstate.

Conclusion

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai v. Pham whose telephone number is 571-272-

1715. The examiner can normally be reached on M-F.

6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HOAI PHAM
PRIMARY EXAMINER